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PATENT
Attorney Docket No.: 18547-042010US
Client Reference No.: 3295.1

COPY

On 5/25/01

TOWNSEND and TOWNSEND and CREW LLP

By: Jennifer K. Hardi

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

McGall and Kajisa

Application No.: 09/810,434

Filed: March 15, 2001

For: PHOSPHITE ESTER OXIDATION
IN NUCLEIC ACID ARRAY
PREPARATION

Examiner: Unassigned

Art Unit: 1645

INFORMATION DISCLOSURE
STATEMENT UNDER 37 CFR §1.97 and
§1.98

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

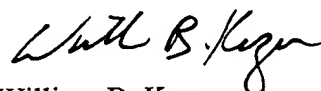
The references cited on attached form PTO-1449 are being called to the attention of the Examiner. Copies of the references are enclosed. It is respectfully requested that the cited references be expressly considered during the prosecution of this application, and the references be made of record therein and appear among the "references cited" on any patent to issue therefrom.

As provided for by 37 CFR 1.97(g) and (h), no inference should be made that the information and references cited are prior art merely because they are in this statement and

no representation is being made that a search has been conducted or that this statement encompasses all the possible relevant information.

Applicant believes that no fee is required for submission of this statement, since it is being submitted prior to the first Office Action. However, if a fee is required, the Commissioner is authorized to deduct such fee from the undersigned's Deposit Account No. 20-1430. Please deduct any additional fees from, or credit any overpayment to, the above-noted Deposit Account.

Respectfully submitted,



William B. Kezer
Reg. No. 37,369

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Two Embarcadero Center, 8th Floor
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Tel: 925 472-5000
Fax: 925 472-5015
WBK:jkh

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PTO/SB/08A (08-00)

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U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 1 of 3

Complete if Known

Application Number 09/810,434
Filing Date March 15, 2001
First Named Inventor Glenn McGall
Group Art Unit 1645
Examiner Name Unassigned
Attorney Docket Number 18547-042010US

U.S. PATENT DOCUMENTS

Examiner Initials *	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			
	1	5,143,854		Pirung et al.	9/1/92	
	2	5,242,979		Barnum et al.	9/7/93	
	3	5,252,743		Barrett et al.	10/12/93	
	4	5,288,514		Ellman	2/22/94	
	5	5,324,633		Fodor et al.	6/28/94	
	6	5,324,663		Lowe	6/28/94	
	7	5,384,261		Winkler et al.	1/24/95	
	8	5,405,783		Pirung et al.	4/11/95	
	9	5,412,087		McGall et al.	5/2/95	
	10	5,424,186		Fodor et al.	6/13/95	
	11	5,445,934		Fodor et al.	8/29/95	
	12	5,451,683		Barrett et al.	9/19/95	
	13	5,482,867		Barrett et al.	1/9/96	
	14	5,489,678		Fodor et al.	2/6/96	
	15	5,491,074		Aldwin et al.	2/13/96	
	16	5,510,270		Fodor et al.	4/23/96	
	17	5,527,681		Holmes	6/18/96	
	18	5,545,531		Rava et al.	8/13/96	
	19	5,547,839		Dower et al.	8/20/96	
	20	5,550,215		Holmes	8/27/96	
	21	5,556,752		Lockhart et al.	9/17/96	
	22	5,571,639		Hubbell et al.	11/5/96	
	23	5,578,832		Trulson et al.	11/26/96	
	24	5,593,839		Hubbell et al.	1/14/97	
	25	5,599,695		Pease et al.	2/4/97	
	26	5,624,711		Sundberg et al.	4/29/97	
	27	5,631,734		Stem et al.	5/20/97	
	28	5,658,734		Brock, et al.	8/19/97	
	29	5,677,195		Winkler et al.	10/14/97	
	30	5,710,000		Sapolsky et al.	1/20/98	
	31	5,744,101		Fodor et al.	4/28/98	
	32	5,744,305		Fodor et al.	4/28/98	
	33	5,753,788		Fodor et al.	5/19/98	
	34	5,770,456		Holmes	6/23/98	
	35	5,800,992		Fodor et al.	9/1/98	
	36	5,831,070		Pease et al.	11/3/98	
	37	5,843,655		McGall	12/1/98	
	38	5,856,011		Sogabe	1/5/99	
	39	5,919,523		Sundberg et al.	7/6/99	
	40	6,022,963		McGall et al.	2/8/00	
	41	6,045,996		Cronin et al.	4/4/00	

Examiner
Signature

Date
Considered

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 2 of 3

Complete if Known

Application Number	09/810,434
Filing Date	March 15, 2001
First Named Inventor	Glenn McGall
Group Art Unit	1645
Examiner Name	Unassigned
Attorney Docket Number	18547-042010US

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ²
		Office	Number ⁴	Kind Code ⁵ (if known)				
	42	PCT	WO 92/10183		Hill	6/25/92		<input type="checkbox"/>
	43	PCT	WO 99/00730		Tremblay et al.	1/7/99		<input type="checkbox"/>
	44	PCT	WO 93/04145		Inoue et al.	3/4/93		<input type="checkbox"/>
	45	PCT	WO 97/10365		Lockhart et al.	3/20/97		<input type="checkbox"/>
	46	PCT	WO 92/10092		Fodor et al.	6/25/92		<input type="checkbox"/>
	47	PCT	WO 94/10128		Holmes et al.	5/11/94		<input type="checkbox"/>
	48	PCT	WO 00/61282		Glazer et al.	10/19/00		<input type="checkbox"/>
	49	PCT	WO 00/21967		McGall et al.	04/20/00		
	50	PCT	WO 00/06771		McGall et al.	02/10/00		
	51	PCT	WO 99/54509		McGall et al.	10/28/99		
	52	PCT	WO 99/40105		Goldberg et al.	02/12/99		
	53	PCT	WO 98/39348		McGall et al.	09/11/98		
	54	PCT	WO 98/20967		Beecher et al.	05/22/98		
	55	PCT	WO 97/39151		Goldberg et al.	10/23/97		
	56	PCT	WO 97/43450		Cronin et al.	11/20/97		
	57	PCT	WO 97/27317		Lockhart et al.	07/31/97		
	58	PCT	EP 742287		McGall et al.	11/13/96		
	59	PCT	EP 7288520		Pease et al.	08/28/96		
	60	EPO	EP 549107		Western et al.	12/29/97		
	61	EPO	967217 A2		McGall et al.	12/29/99		

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	62	MCGALL <i>et al.</i> , "The Efficiency of Light-Directed Synthesis of DNA Arrays on Glass Substrates" <i>Journal of the American Chemical Society</i> , 1997, Pages 5081-5090, Vol. 119, No. 22	<input type="checkbox"/>
	63	LOCKHART <i>et al.</i> , "Expression monitoring by hybridization to high-density oligonucleotide arrays" <i>Nature Biotechnology</i> , 1996, Pages 1675-1680, Vol. 14	<input type="checkbox"/>
	64	SAIZIEU <i>et al.</i> , "Bacterial transcript imaging by hybridization of total RNA to oligonucleotide arrays" <i>Nature Biotechnology</i> , 1998, Pages 45-48, Vol. 16	<input type="checkbox"/>
	65	CHEE <i>et al.</i> , "Accessing Genetic Information with High-Density DNA Arrays" <i>Science</i> , 1996, Pages 610-614, Vol. 274	

Examiner
Signature

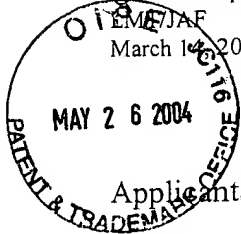
Date
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PATENT APPLICATION
DOCKET NO.: 2719.2017-001

EMF/JAF
March 14, 2003



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Glenn McGall and Lisa Kajisa
Application No.: 09/810,434 Group Art Unit: 1635
Filed: March 15, 2001 Examiner: Epps, Janet L.
Confirmation No.: 6484
Title: PHOSPHITE ESTER OXIDATION IN NUCLEIC ACID ARRAY PREPARATION

VIA HAND DELIVERY

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

This Information Disclosure Statement is submitted:

☐ under 37 CFR 1.129(a), or

(First/Second submission after Final Rejection)

☒ under 37 CFR 1.97(b), or

(Within any one of the following time periods: three months of filing national application (other than a CPA) or date of entry of the national stage in an international application; or before the mailing date of a first office action on the merits in a non-provisional application, including a CPA, or a Request for Continued Examination).

☐ under 37 CFR 1.97(c) together with either:

☐ a Statement under 37 CFR 1.97(e), as checked below, or

☐ a \$180.00 fee under 37 CFR 1.17(p), or

(After the 37 CFR 1.97(b) time period, but before final action or notice of allowance, whichever occurs first)

☐ under 37 CFR 1.97(d) together with:

☐ a Statement under 37 CFR 1.97(e), as checked below, and

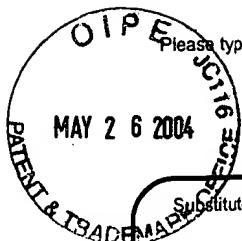
☐ a \$180.00 fee under 37 CFR 1.17(p), or

(Filed after final action or notice of allowance, whichever occurs first, but on or before payment of the issue fee)

☐ under 37 CFR 1.97(i):

Applicant requests that the IDS and cited reference(s) be placed in the application filewrapper.

(Filed after payment of issue fee)



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U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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Sheet 3 of 3

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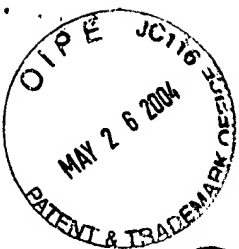
Application Number	09/810,434
Filing Date	March 15, 2001
First Named Inventor	Glenn McGall
Group Art Unit	1645
Examiner Name	Unassigned
Attorney Docket Number	18547-042010US

66	McGALL <i>et al.</i> , "High-density oligonucleotide probe arrays" <i>Proc. SPIE-Int. Soc. Opt. Eng.</i> , 2000, Pages 106-110, Vol. 3926 (Advances in Nucleic Acid and Protein Analyses, Manipulation, and Sequencing)
67	WALLRAFF <i>et al.</i> , "Lithographic techniques for the fabrication of oligonucleotide arrays" <i>J. Photopolym. Sci. Technol.</i> , 2000, Pages 551-558, Vol 13
68	GLAZER <i>et al.</i> , "High Surface Area Substrates for DNA Arrays" <i>Mat. Res. Soc. Symp. Proc.</i> , 1999, Pages 371-6, Vol. 576
69	FIDANZA <i>et al.</i> , "High-Density Nucleoside Analog Probe Arrays for Enhanced Hybridization" <i>Nucleosides and Nucleotides</i> , 1999, Pages 1293-1295, Vol. 18
70	HACIA <i>et al.</i> , "Enhanced High Density Oligonucleotide Array Based Sequence Analysis using Modified Nucleotide Triphosphates" <i>Nucleic Acids Res.</i> , 1998, Pages 4975-4982, Vol. 26
71	PIRRUNG <i>et al.</i> , "Proofing of Photolithographic DNA synthesis with 3', 5' - dimethoxybenzoinyloxycarbonyl-protected deoxy-nucleoside phosphoramidites" <i>J.Org. Chem.</i> , 1998, Pages 241-246, Vol. 63

Examiner
Signature

Date
Considered

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



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TO THE U.S. PATENT AND TRADEMARK OFFICE

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RE: McGall and Kajisa

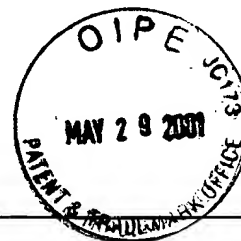
TITLE OF DOCUMENT(S):

Information Disclosure Statement

PTO-1449

References 71

JUN 05 2001



Application No.: 09/810,434

File No. 018547-042010

Date Due _____

Date Mailed: 5/25/01

Atty/Secty. WBK/jkh

SF 1018344 v1

Statement Under 37 CFR 1.97(e)

- ☐ Each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement; or
- ☐ No item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the undersigned, after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of this Information Disclosure Statement.

Statement Under 37 CFR 1.704(d) (Patent Term Adjustment)

Applies to original applications (other than design) filed on or after May 29, 2000

- ☐ Each item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application and this communication was not received by any individual designated in § 1.56(c) more than thirty days prior to the filing of the Information Disclosure Statement.
- ☒ Enclosed herewith is form PTO-1449:
- ☒ Copy of the cited reference is enclosed.
- ☐ Copies of cited references are enclosed except those entered in prior application, U.S. Application No. [], to which priority under 35 U.S.C. 120 is claimed. [The earlier application contains copies of the cited references.]
- ☐ The listed references were cited in the enclosed International Search Report in a counterpart foreign application.
- ☐ The "concise explanation" requirement (non-English references) for reference(s) [] under 37 CFR 1.98(a)(3) is satisfied by:
- ☐ the explanation provided on the attached sheet.
 - ☐ the explanation provided in the Specification.
 - ☐ submission of the enclosed International Search Report.
 - ☐ submission of the enclosed English-language version of a foreign Search Report and/or foreign Office Action.
 - ☐ the enclosed English language abstract.

[] Applicant requests that the following non-published pending applications be considered:

Examiner's
Initials

____ U.S. Patent Application No. [], by [inventor(s)], filed [], Docket No.: []
 ____ U.S. Patent Application No. [], by [inventor(s)], filed [], Docket No.: []
 ____ U.S. Patent Application No. [], by [inventor(s)], filed [], Docket No.: []

Examiner

Date

- [] A copy of each above-cited application, including the current claims, is enclosed.
- [] A copy of each above-cited application, including the current claims, is enclosed, except those entered in prior application, U.S. Application No. [], to which priority under 35 U.S.C. 120 is claimed.

The Examiner is requested to return a copy of the above list of pending applications indicating which references were considered with the next office communication.

It is requested that the information disclosed herein be made of record in this application.

REMARKS

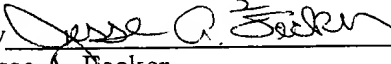
Applicants are submitting this Supplemental IDS with unpublished data obtained by the inventors of the subject application. The excerpt included herewith as "Reference AR" shows the results of a single experiment with statistically inconclusive results. Applicants draw the Examiner's attention to the Table in Reference AR. The results depicted in the table show that hybridizing a sequence to a probe that was prepared with an oxidant solution containing 10% water and 0.01 M iodine produced an average relative hybridization signal intensity of 200. Similar hybridizations where the oxidant solution contained 10% water and 0.10 M iodine (the standard concentration) produced average relative hybridization signal intensities of 166 and 278, for an overall mean of 222 and a standard deviation of 56. Although the average relative signal intensity of the trial using 0.01 M iodine is less than the mean of the trials using 0.10 M iodine, the average relative intensity of the trial using 0.01 M iodine is well within one standard deviation of the other trials.

Method of payment:

- [] A check for the fee noted above is enclosed, or the fee has been included in the check with the accompanying Reply. A copy of this Statement is enclosed.
- [] Please charge Deposit Account 08-0380 in the amount of \$[]. A copy of this Statement is enclosed.
- [X] Please charge any deficiency in fees and credit any overpayment to Deposit Account 08-0380.

Respectfully submitted,

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

By 
Jesse A. Becker
Registration No.: 52,883
Telephone: (978) 341-0036
Facsimile: (978) 341-0136

Concord, MA 01742-9133

Dated: 3-14-03

PTO-1449 REPRODUCED

ATTORNEY DOCKET NO.
2719.2017-001

APPLICATION NO.
09/810,434

INFORMATION DISCLOSURE CITATION
IN AN APPLICATION

APPLICANT
Glenn McGall and Lisa Kajisa

FILING DATE
March 15, 2001

CONFIRMATION NO.
6484

GROUP
1635

MARCH 13, 2003

U.S. PATENT DOCUMENTS

EXAM- INER INI- TIAL		DOCUMENT NUMBER	ISSUE DATE / PUBLICATION DATE	NAME
	AA			
	AB			
	AC			
	AD			
	AE			
	AF			
	AG			
	AH			
	AI			
	AJ			
	AK			

FOREIGN PATENT DOCUMENTS

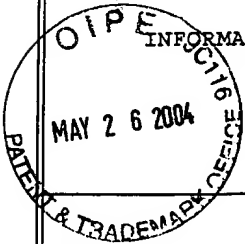
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION YES NO
	AL						
	AM						
	AN						
	AO						
	AP						
	AQ						

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

	AR	"Oxidizing Agent Study" (unpublished data)
	AS	
	AT	

EXAMINER

DATE CONSIDERED



Oxidizing Agent Study

A nucleic acid array was prepared on a silicon substrate, as described in the Declaration of Glenn McGall Under 37 C.F.R. § 1.132 (hereinafter "the Declaration"). The iodine concentration in the solution used to oxidize phosphite esters to phosphate esters was varied from 0.01 M to 0.10 M.

After preparation, the silicon substrate was processed into chips according to the procedure described in the Declaration. The chips were hybridized with the Human Full-Length assay, which is a standard product available from Affymetrix, for 30 minutes at 35°C. As described in the Declaration, the average relative hybridization signal intensity is a measure of the functional performance of the nucleic acid array. An increased average relative hybridization signal intensity indicates enhanced functional performance of the nucleic acid array.

The results are as follows:

TABLE

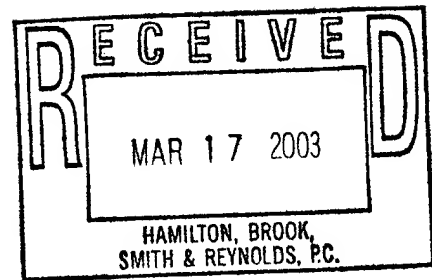
Iodine Concentration	Average Relative Hybridization Signal Intensity
0.01 M	200
0.02 M	338
0.05 M	299
0.10 M	166
0.10 M	278

The mean of the two experiments using 0.10 M iodine in the oxidant solution is 222, with a standard deviation of 56.

COPY FAX

To: Jesse A. Fecker, Esq.

From: J.F. Brown & Assoc.



Initials: LMT/JAF/dgl Docket No.: 2719.2017-001 Date: 03/17/03

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- ☒ SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENTS
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Authorization to Charge all Fees

Applicants: Glenn McGall *et al.*
Application No.: 09/810,434 Filed: March 15, 2001
Title: PHOSPHITE ESTER OXIDATION IN NUCLEIC ACID ARRAY...

Date received by the PTO:
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